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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/656,256

09/08/2003

Anbo Wang

3811-007-27

8598

24510

7590

05/01/2006

DLA PIPER RUDNICK GRAY CARY US LLP
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EXAMINER

KIANNI, KAVEH C

ART UNIT

PAPER NUMBER

2883

DATE MAILED: 05/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/656,256

Applicant(s)

WANG, ANBO

Examiner

Kianni C. Kaveh

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) 1-24 and 32-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25-31, 40 and 41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 25-31 and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cielo (US 4400056).

Regarding claim 25, 40 and 41, Cielo teaches a method comprising the steps of: forming a mask /plurality-of-masks 16 over an optical fiber 10, the optical fiber having a core 12 surrounded by a cladding 14, the mask/each-mask 16 having openings 26, the openings of the plurality of masks 16 being spaced a part; exposing the opening/each-of-the-openings 26 to radiation such that a refractive index of a portion of the fiber corresponding to the opening is changed (see at least abstract), whereby light propagating in the optical fiber is reflected at a first end and at a second end of the

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portion/each-of-the-portions and propagates backward along the optical fiber (shown in at least fig. 1 and 4, item reflected light from the ends of the portion), light reflected at the first end of the/each portion interfering with light reflected from the second end of the/each portion such that changes in a length of the portion result in observable changes in an amplitude of such reflected light (shown in at least figures 1 and 5; also col. 5, lines 1-13);

measuring amplitudes of backward-propagating reflection peaks in the fiber at a plurality of times, each of the times corresponding to a location of one of the portions of the optical fiber whose refractive index was changed during the exposing step (see col. 5, lines 1-13); forming a first sensor 30 in an optical fiber 10 (see also col. 1, last parag.-col. 2, 1st parag.); a plurality of sensors 30 are formed in the optical fiber 10; the plurality of sensors 30 being spaced apart; launching an optical light into the optical fiber, the optical fiber having a plurality of optical sensors 30 formed therein, and measuring amplitudes of a backward-propagating reflection peaks in the fiber at a plurality of times, each of the times corresponding to a location of one of the plurality of optical sensors (see col. 5, lines 1-13; regarding launching of the optical pulse the arguments presented in rejection of claim 40 above).

However, Cielo does not explicitly state that the above openings can be also a single opening, and a step of launching an optical pulse into the optical fiber. It would have been obvious to a person of ordinary skill in the art when the invention was made to use only one opening of Cielo's opening as matter of design configuration and/or choice since Cieco is demonstrating a plurality of openings that lead to cascade of

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observable changes in the amplitude of the back-reflection peaks which encompasses the applicant's invention in which no adverse effect would be created in the function of an apparatus created by the above steps if the openings is a single opening. Further the applicant has not indicated in the specification that a plurality of openings would have any adverse effect in the functioning of the resultant steps and in fact the applicant also uses a plurality of openings for such purpose shown in applicant's drawings 4 and 5 and parag. 0040, thus, an opening or opening in the above steps is a matter of choice for an ordinary skill in the art and since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St Regis Paper Co. v. Bemis Co.*, 193 USPQ 8, It also would have been obvious to a person of ordinary skill in the art when the invention was made to modify launching of light by Cielo into the optical fiber 10 shown in at least fig. 1, as pulsed since such sending of pulse signal instead of an analog signal is extremely conventional and since such pattern of depth(s)/width(s) would provide tunable distribution feedback reflector made in a length of fiber (see col. 1, 1st parag.).

Regarding claims 26-31, Cielo further teaches wherein the exposing step results in a change in a refractive index of the core and/or cladding (see at least abstract); wherein the exposing step is performed using a laser beam (see col. 6, 3rd parag.); wherein the fiber is doped with germanium (see col. 1, 2nd parag.); wherein exposing step is performed using an energized ion beam (see col. 3, lines 45-62; also col. 1, 2nd parag.).

Response to Arguments and Amendment

Applicant's argument filed on 2/17/06 have been fully considered but they are not persuasive.

Applicant asserts (page 10, 2nd parag.) that Cielo's teachings is directed toward plurality of opening srather than that of a single. Examiner responds that it would have been obvious to a person of ordinary skill in the art when the invention was made to use only one opening of Cielo's opening as matter of design configuration and/or choice since Cieco is demonstrating a plurality of openings that lead to cascade of observable changes in the amplitude of the back-reflection peacks which encompasses the applicant's invention in which no adverse effect would be created in the function of an apparatus created by the above steps if the openings is a single opening. Further the applicant has not indicated in the specification that a plurality of openings would have any adverse effect in the functioning of the resultant steps and in fact the applicant also uses a plurality of openings for such purpose shown in applicant's drawings 4 and 5 and parag. 0040, thus, an opening or opening in the above steps is a matter of choice for an ordinary skill in the art, since such pattern of depth(s)/width(s) would provide tunable distribution feedback reflector made in a length of fiber (see col. 1, 1st parag.)

Applicant alleges (page 4, 4th parag.) that Cielo does not tech measuring amplitudes of backward-propagating reflection peaks in the fiber at a plurality of times, each of the times corresponding to a location of one of the portions of the optical fiber whose refractive index was changed during the exposing step. The examiner responds that indeed such limitation is taught by Cielo (see col. 5, lines 1-13).

THIS ACTION IS MADE FINAL

This action in response to applicant's amendment made FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

This application contains claims 1-24 and 32-39 drawn to an invention nonelected with traverse in Paper No. 4. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

- The examiner kindly advises the applicant to appropriately narrow the scope if the invention in order to allow the case.

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Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Cyrus Kianni whose telephone number is (571) 272-2417.

The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 6:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font, can be reached at (571) 272-2415.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for formal communications intended for entry)

or:

Hand delivered responses should be brought to Crystal Plaza 4, 2021 South Clark Place, Arlington, VA., Fourth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956.

K. Cyrus Kianni
Primary Patent Examiner
Group Art Unit 2883

April 24, 2006



**KAVEH KIANNI
PRIMARY EXAMINER**